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Diffusion of internet banking amongst educated consumers in a high income non-OECD country

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It is shown that although the banking sector in the UAE is a regional leader, internet banking in the UAE is yet to be properly utilized as a real added value tool to improve customer relationship and to attain cost advantages. The Technology Acceptance Model (TAM) was used to identify factors influencing the intention to adopt and continued use of internet banking customers. Data was collected from internet banking users and potential users in the United Arab Emirates and factor analyses and multiple regression analyses were conducted to examine the data. Relative usefulness is introduced as one of the factors and is defined as the degree to which a new technology is better than exiting ones. There is a significant difference between users and non-users on six of the seven factors identified. Further, it was revealed that relative usefulness, perceived risk, computer efficacy and image had a significant impact on continued usage of internet banking for IB Users, while relative usefulness and result demonstrability were the only ones significant for Non-users of internet banking. The effects of age, gender, income, and e-commerce users also explored. Result demonstrability is significant for all categories of non-users except for those with income below AED 7,000. Implications of results were discussed, and future research directions outlined.

Keywords

Diffusion, internet, banking, amongst, educated, consumers, high, income, non, OECD, country

Disciplines

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Keywords: Internet Banking, Consumer Behavior, TAM, United Arab Emirates Banking

Abstract

This study analyses the internet banking channels and service preferences of educated banking consumers in the UAE and examines the factors influencing the intention to adopt or to continue the use of internet banking among both users and non users of internet banking.

It is shown that although the banking sector in the UAE is a regional leader, internet banking in the UAE is yet to be properly utilized as a real added value tool to improve customer relationship and to attain cost advantages. The Technology Acceptance Model (TAM) was used to identify factors influencing the intention to adopt and continued use of internet banking customers. Data was collected from internet banking users and potential users in the United Arab Emirates and factor analyses and multiple regression analyses were conducted to examine the data. Relative usefulness is introduced as one of the factors and is defined as the degree to which a new technology is better than exiting ones. There is a significant difference between users and non-users on six of the seven factors identified. Further, it was revealed that relative usefulness, perceived risk, computer

efficacy and image had a significant impact on continued usage of internet banking for IB Users, while relative usefulness and result demonstrability were the only ones significant for Non-users of internet banking. The effects of age, gender, income, and e-commerce users also explored. Result demonstrability is significant for all categories of non-users except for those with income below AED 7,000. Implications of results were discussed, and future research directions outlined.

INTRODUCTION

Since the formation of the federation in 1971, the United Arab Emirates (UAE) has experienced a dramatic economic progress. With a per capita income of US \$ 16,396 in 2003, the UAE is classified as a high income non-OEDC country according to World Bank country classifications (WDI, 2005). UAE's financial sector has made giant strides in recent years making its banking sector one of the most profitable in the world (Mahasneh, 2004).

Furthermore, the opening of the Dubai International Financial Center in 2004 is expected to continue to grow its current 6% (MOP, 2005).

Having stated the above, however, we note that the environment is becoming more complex. UAE banks are expected to face increased competition due to the GCC economic union scheduled for 2007 with a full fledged monetary union in 2010. In addition to this, the UAE is on the brink of signing a free trade agreement with the United States and joining the World Trade Organization. Given the positive cost implications for banks to promote the usage of internet banking (Frust, Lang & Nolle, 1998, Booz, Allen & Hamilton, 1997), UAE banks will need to promote internet banking to protect their potentially eroding profit margins.

Awamleh and Fernandes (2005) found that despite this development and the remarkable progress, the banking products and services do not seem to be as elevated compared to those in the Western economies (IMF Report, 2003). Additionally, anecdotal evidence suggests that less than 20% of bank account holders in the UAE are registered for the internet banking service. Although reliable figures of internet banking users in high income countries are not available, studies indicate a higher percentage of internet banking users than that of the UAE. For example, in Hong Kong, Chan and Lu (2004) identified 30% of their sample as internet users, Gerrad and Cunningham (2003) found 46% of their sample in Singapore to be internet users, while Chang (2004) reported an astounding 63% in Korea.

Relative to per capita income of the country, the low usage of internet banking in the UAE is surprising to say the least. One possible explanation for this outcome could be that in spite of the concerted efforts of the government, the UAE is not yet a high income country in ICT (information and communication technologies) sphere (See Table 1).

Table 1
Selected ICT Indicators

Year	2004	2002	2002	2003
Country	Per Capita GDP US \$	Internet Users/ 10,000 Inhabitants	PCs/ 100 Inhabitants	Telephones Lines / 100 Inhabitants
USA	\$ 41, 400	5,521	65.98	62.38
UK	\$ 33,940	4,230	40.57	59.02

Hong Kong	\$ 26,810	4,301	42.20	55.89
Singapore	\$ 24,220	5,043	41.38	45.23
UAE	\$23, 900 *	2,708	11.99	28.11
Spain	\$ 21, 210	1,931	19.60	42.19
New Zealand	\$ 20,310	4,843	41.38	44.85

Source : World Bank WDI (2005) * UAE Ministry of Planning

For instance, when compared to New Zealand's figures, a country of similar population size and per capita income, UAE's number of internet users per 10,000 people is one fourth of what it should be. Another possible reason for this low level could be that the UAE has a relatively young population with 25.6 % of them in the 0-14 age group. Moreover, the low internet banking usage can be attributed to the high proportion of immigrant workers who are employed in low skilled jobs. Approximately 43% of the population has an educational level of elementary school and below.

While the ICT usage may seem dismal when compared to high income countries, the UAE is the regional leader. The UAE leads with an internet penetration rate of 29.6% compared to the regional average of 8.3 % (See Table 2). However, this penetration rate must be viewed in comparison with those of other high income regions such as North America, Europe and Australia where the lowest average is for Europe that of 36.8 %.

Table 2
Internet Penetration

Country/Region	Population Millions	% of Population Penetration *
Bahrain	.70	27.7
Iran	68.45	7.0%
Jordan	5.78	7.9%
Kuwait	2.53	22.4%
Oman	2.40	7.5%
Qatar	.77	18.3%

Saudi Arabia	23.13	11%
Turkey	75.56	9.9%
UAE	3.75	29.6%
Middle East	260.81	8.3%
Oceania/Australia	33.44	49.2%
Europe	731.02	36.8%
North America	328.38	68%
World Total	6,420	14.6%

Source : Internet World Statistics (September 2005)

Penetration rate = Internet Users/ Population

Given that the ICT infrastructure is not developed to the level of high income countries it is obvious that the overall usage of internet banking will be lower than those countries. However, factoring out the accessibility to internet and the low education levels may allow us to identify the delivery channel, banking preferences and factors that impact the intention to adopt or to continue using internet banking. This paper is concerned with the identification of the acceptance and usage factors for users and non-users of internet banking. The paper focuses on the educated consumers (high school and above), who have access to the internet on regular basis. The proposed model used is similar to the one used by Chan and Lu (2004) which is based on the Theory of Planned Behavior (TPB) (Ajzen 1991), Technology Acceptance model (TAM) (Davis, Bagozzi, & Warshaw, 1989) and TAM2 (Venkatesh and Davis, 2000).

SURVEY OF LITERATURE

There are two main approaches in identifying the intention to adopt new technologies, the diffusion of innovations (Rogers, 1962; 1995) and the technology acceptance model (TAM) introduced by Davis (1986).

Rogers (1995) highlights relative advantage, observability, trialability and complexity as the key factors influencing the adoption of new technologies. Polatoglu and Ekin (2001) in their study of Turkish customers' acceptance of internet banking represent relative advantage in terms of price, convenience and performance. Observability is stated in terms of internet banking consumers being able to see the positive effects of adoption, this could be in the form of checking their account activities, pay bills, and make investments. Trialability refers to the option where the consumer has a choice of low-cost or low risk trail of services. Complexity refers to the fact that the more complex the product or service the slower is the adoption rate. In the case of internet banking, Polatoglu and Ekin (2001) relate this to consumers having sufficient understanding of the computer and computer related technology.

Lockett and Littler (1997) identify additional factors that are believed to influence adoption. Polatoglu and Ekin (2001) define such factors. Compatibility refers to whether the innovation is compatible with the individual and group values or beliefs. Perceived risk refers to the financial,

physical and social risks associated with internet banking. Young, affluent and highly educated groups generally accept changes more readily. The number of decision makers is a factor in determining the ease of diffusion of technology, the fewer the more rapidly will the product or service spread. Finally, effective marketing of the new technology will have a positive effect on acceptance.

The second approach to adoption of new technology is the technology acceptance model (Davis, 1986). Chan and Lu (2004) used the TAM research framework and identified factors that would influence the adoption and continued use of internet banking. In order to assess the adoption influencers, Chan and Lu developed a model using constructs that are well grounded in social psychology, social cognitive theory (i.e., Self Efficacy), and information technology acceptance models. They conducted an extensive literature review of the above areas and concluded that seven factors are highly relevant.

The resulting model delineates the seven factors that are expected to influence the adoption of internet banking decision by a potential user. The final set of factors was based in the main on the theory of planned behavior (Ajzen, 1991), technology acceptance model (Davis, Bagozzi, & Warshaw, 1989; Venkatesh & Davis, 2000), and computer self-efficacy which is derived from social cognitive theory (Bandura, 1986). Below are the following factors with a brief description (adopted from Chan and Lu, 2004):

Computer Self Efficacy(CE): the perception of the potential adopter of his/her ability to use the computer in order to accomplish a task.

Image(IM): the degree to which adoption of internet banking is perceived to enhance one's image or status in one's social system.

Perceived Ease of Use(PE): the degree to which internet banking is perceived as easy to understand and use.

Perceived Risk(PR): the uncertainty that a potential adopter faces when he/she cannot foresee the consequences of his/her adoption decisions.

Perceived Usefulness(PU): the degree to which a potential adopter views internet banking as offering advantages over previous ways of performing the banking transactions.

Results Demonstratability(RD): the degree to which the results of using internet banking are observable and communicable to others.

Subjective Norms(SN): a potential adopter's belief that the salient referent thinks he/she should or should not adopt internet banking.

Gong and Zu (2004) define perceived usefulness as the prospective user's subjective probability that using a specific application system would increase his or her job performance. Perceived ease of use is the degree to which a prospective user expects the target system to be free of effort. The Technology Adoption Model (TAM) posits that "usefulness" is influenced by "ease of use" as the easier a technology, the more it is used the more it will be perceived as being useful (Venkatesh, 2000; Dabholkar, 1996). In the case of internet banking, perceived usefulness would refer to the outcome of using internet banking, eliminates time and geographical constraints and reduces transaction costs compared to existing banking channels. Moreover, ease of use would refer to that internet banking is easy to use and is an easy way to conduct banking transactions. Previous studies (e.g., Awamleh & Fernandes, 2005) did not provide support for one or both of the two last constructs, usefulness and ease of use. There seems to be a theoretical overlap between these two constructs and factor analyses in the past have provided hints for this conclusion. Accordingly, we propose collapsing these two constructs in one and we suggest calling it Relative Usefulness. We define relative usefulness as the degree to which a new technology is better than the existing ones. This could be in terms of convenience, economic benefits, ease of use and independence.

Population, Sample, Subjects, and Instrument

The population of this study consisted of bank customers with a high school degree or higher educational qualification in the UAE across various sectors and industries. A total of 700 questionnaires were distributed by hand to volunteers from graduate and undergraduate programs

at a medium size international university in the UAE. Additionally, several national and multinational companies have been approached in person, those who agreed to participate, allowed the researchers to distribute the questionnaires on the premises and to collect them from employees. In total, three hundred and twenty five filled questionnaires were collected. Of these, 52 respondents indicated they had qualifications less than high school and were excluded from the study. Of the remaining 273 questionnaires, 238 were usable as the others had to be discarded due to incomplete data. Data was collected through a questionnaire using 5-item Likert scale. Data collection took two months. Fifty four percent of the respondents were internet banking users, Sixty six percent of respondents were male; 49% were in the 31-37 years age group and 48% had spent more than 10 years in the UAE.

Results

The demographic and characteristics sorted on the basis of Internet Banking Users (IB Users) and Non-Users is shown in Table 3. In addition to the demographic characteristics , a category called E-Commerce user/non-user is created. An E-Commerce user is defined as one who has purchased items such as airline tickets, booked hotels and car rentals online in the last two years. There is a significant difference in proportions for users and non users of internet banking for the E-Commerce user and non-user category.

Table 3

Demographic Characteristics

	Internet Banking Users	Non-Users
Gender		
Male	70.5%	61.5%
Female	29.5%	38.5%
Age		
>= 30	47.29%	56.88%
> 30	52.71%	43.12%
Number of Years in the UAE		
>= 5 years	32.56%	30.27%
> 5 years	67.44%	69.73%
Monthly Income		

>= AED 7,000	48.06%	55.96%
> AED 7,000	51.94%	44.04%
E-Commerce (airline tickets, hotel room, car rental online purchase) in the past 2 years		
E-Commerce User	39.53%	24.77% *
E-Commerce Non-User	60.47%	74.31% *

* denotes that there is a significant difference between users and non-users at a 95% confidence level

Delivery channel preferences

ATMs is the most preferred delivery channel for users and non-users (Table 4). This could be due the fact that much of the transactions in the UAE are cash based and ATMs are widely used. The second ranked delivery channel for IB Users is internet banking followed by telebanking and branch banking. Non-users predominantly prefer the traditional channels of banking, ATMs as their first choice of delivery channel followed by branch banking and telebanking.

Table 4
Banking Channels

Internet Banking Users						Non-Users		
	IB	Telebanking	Branch	ATM		Telebanking	Branch	ATM
1st	26.36%	13.95%	6.98%	58.91%		13.76%	11.93%	74.31%
2nd	31.78%	23.26%	17.05%	23.26%		21.10%	45.87%	14.68%
3rd	22.48%	33.33%	27.13%	11.63%		46.79%	29.36%	1.83%
4th	19.38%	29.46%	48.84%	6.20%		18.35%	12.84%	9.17%

Note: Highlighted figures show the highest proportions for banking delivery channel preferences

Banking services

The banking service used most often by IB Users and Non-Users is cash withdrawal and deposit (Table 5 A). This is in line with ATMs being the most preferred banking service channel used. Credit

card payments rank second and third for IB Users. For Non Users, credit card payment ranks second while statement enquiry ranks fourth.

Table 5 A
Banking Services

			Internet Banking Users			
	Cash	Utility Bill	Credit Card	Money	Statement	Cheque Book
	With/Dep	Payments	Payments	Transfers	Enquiry	Request
Ranking as per service used most often						
1 (most)	75.19%	7.75%	10.08%	6.98%	11.63%	1.55%
2	14.73%	23.26%	30.23%	13.18%	15.50%	3.10%
3	2.33%	20.93%	26.36%	21.71%	17.05%	9.30%
4	3.10%	10.85%	14.73%	14.73%	31.78%	12.40%
5	1.55%	17.05%	8.53%	20.16%	18.60%	24.81%
6 (least)	3.10%	20.16%	10.08%	23.26%	5.43%	48.84%
			Non-Users			
	Cash	Utility Bill	Credit Card	Money	Statement	Cheque Book
	With/Dep	Payments	Payments	Transfers	Enquiry	Request
1 (most)	78.90%	7.34%	13.76%	0.92%	5.50%	3.67%
2	5.50%	18.35%	30.28%	15.60%	13.76%	8.26%

3	3.67%	13.76%	0.14%	11.93%	30.28%	11.93%
4	2.75%	10.09%	9.17%	23.85%	16.51%	22.02%
5	1.83%	15.60%	12.84%	20.18%	17.43%	13.76%
6 (least)	7.34%	34.86%	20.18%	27.52%	16.51%	40.37%

Note : Highlighted figures show the highest proportions for banking service preferences

Marketing Variables

Table 5 B shows the impact of the marketing efforts of banks in encouraging their customers to subscribe to the internet banking service. Non-users have a significantly greater mean for both variables.

Table 5 B
Marketing Variables

	V1	N	Mean	Sig (2-tailed)
My bank does not make an effort to publicize its internet banking service	IB-Users	129	2.38	.000
	IB Non-users	109	2.63	
The process to sign up for internet banking service with my bank is complex	IB Users	129	2.22	.014
	IB Non-users	109	2.58	

Model testing

Initially, factor analysis was performed to validate the constructs included in this part of the study. Results of factor analysis are shown in Table 6. These results reveal that the six dimensions adopted by Chan and Lu in addition to the dependent factors are confirmed in this sample, with very minor adjustments. More importantly, our newly formed construct of relative usefulness was validated. Additionally, scale reliability for all factor are in the acceptable range (Cronbach Alphas).

Table 6
Factor analysis of UAE Internet banking users

Factors	Loadings	Statistics
Factor 1 – Relative Usefulness (RU)		

Internet banking is an easy way to conduct banking transactions	.812	<div>% variance explained = 25.93</div> <div>Cumulative %variance explained = 25.93</div> <div>Cronbach's Alpha = .9141</div>
Internet baking eliminates geographic constraint	.812	
Internet banking eliminates time constraint	.795	
Internet banking is convenient way to manage finances, is available 24 hours a day.	.763	
Internet banking is more easy to use than existing banking channels	.761	
Using internet banking will reduce my transaction costs such as fees paid to banks	.712	
Internet banking is easy to use	.706	
Internet banking makes it easier for me to conduct my banking transactions	.603	
Factor 2 – Perceived Risk (PR)		
I am afraid others will know information concerning my internet banking transactions	.904	<div>% variance explained = 10.41</div> <div>Cumulative %variance explained = 36.40</div> <div>Cronbach's Alpha = .9031</div>
I feel that others can tamper with information concerning my internet banking transactions.	.897	
I am not confident about the security aspects of internet banking in the UAE	.828	
I believe it is easy for my money to be stolen if using internet banking	.783	
Factor 3 – Computer Self Efficacy (CE)		
I am confident of using internet banking even if there was no one around to show me how to use it	.881	<div>% variance explained = 8.24</div> <div>Cumulative %variance explained = 44.64</div> <div>Cronbach's Alpha = .8696</div>
I am confident of using internet banking even if I have not used a system like it before	.847	
I am confident of using internet banking even if I have only online instructions for reference	.738	
Factor 4 – Image (IM)		

Adopting IB I would be more prestigious amongst peers	.879	% variance explained = 5.65 Cumulative %variance explained = 50.28 Cronbach's Alpha = .8503
Having internet banking is trendy amongst my peers	.820	
Adopting IB would give me a higher status amongst peers	.807	
Factor 5 – Subjective Norm (SN)		
Decision to adopt IB is influenced by friends	.878	% variance explained = 3.78 Cumulative %variance explained = 55.34 Cronbach's Alpha = .8340
My decision to adopt or not to adopt internet banking is influenced by friends and relatives	.826	
Decision to adopt IB is influenced by colleagues/classmates	.820	
Factor 6 – Result Demonstrability (RD)		
I believe I could communicate to others the advantages and disadvantages of using internet banking	.785	% variance explained = 3.97 Cumulative %variance explained = 59.31 Cronbach's Alpha = .7464
I have no difficulty in telling others about the results of internet banking	.677	
The results of internet banking are apparent to me	.504	
Factor 7 – Intention to Adopt (IA)		
Be interested in using Bill payment facility via Internet Banking in the next 6 months.	.865	% variance explained = 3.534 Cumulative %variance explained = 62.85 Cronbach's Alpha = .8307
Be interested in making credit card payments via internet banking within the next 6 months.	.842	
Plan to experiment or use internet banking in the next 6 months.	.526	

There is a significant difference for all constructs except for IM Image between the constructs for IB Users and Non-Users of internet banking (Table 7).

Table 7
IB User /Non-User

Construct	t	Sig. (2-tailed)
PU	-5.748	.000
PR	7.017	.000
CE	-4.497	.000
IM	-1.397	.164
RD	-6.852	.000
IA	-6.324	.000
SN	2.242	.026

Highlighted figures show no significant difference between the IB User and Non-User Groups

To evaluate the impact of the six independent factors on the dependent one which is intention to adopt, a multiple regression was performed for IB Users and Non-users. Table 8 shows the mean and standard deviation for the each of the constructs.

Table 8
IB-Users/Non-Users Group Statistics

	Group	N	Mean	Std. Deviation
RU	User	129	2.1318	.83973
	Non-user	109	2.7523	.81773
PR	User	129	3.5446	.97800

	Non-user	109	2.6514	.97896
CE	User	129	2.6563	1.07847
	Non-user	109	3.2599	.97326
IM	User	129	3.7494	.99742
	Non-user	109	3.9235	.91020
SN	User	129	4.3333	.85391
	Non-user	109	4.0765	.91133
RD	User	129	2.4109	.85240
	Non-user	109	3.1407	.77684
IA	User	129	2.3372	.93599
	Non-user	109	3.1162	.95944

Table 9a and Table 9b show results of the multiple regression for IB Users and Non-users with Intention to Adopt - IA as dependent variable and entering Image – IM, Subjective Norms – SN, Perceived Risk – PR, Computer Efficacy – CE, *Relative Usefulness (RU)*, and *Result Demonstrability – RD* as independent variables.

Table 9a

Multiple Regression. Intention to Adopt as Dependent Variable

Users of Internet Banking

R	Adjusted R Square		Std. Error of the Estimate	
.711(a)	.505	.481	.67422	
Sum of Squares	Df	Mean Square	F	Sig.
56.679	6	9.446	20.781	.000(a)

55.458	122		.455			
112.137	128					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
(Constant)	1.014	.478		2.121	.036	
RU	.543	.091	.488	5.993	.000	
PR	-.175	.065	-.183	-2.698	.008	
CE	.164	.062	.189	2.630	.010	
IM	.189	.068	.201	2.776	.006	
RD	-.002	.091	-.002	-.026	.979	
SN	-.081	.077	-.074	-1.050	.296	

Highlighted variables show $p < .01$

Table 9b

Multiple Regression. Intention to Adopt as Dependent Variable

Non-Users of Internet Banking

Adjusted R Square		Std. Error of the Estimate		
.252	.208	.85404		
Sum of Squares	Df	Mean Square	F	Sig.
25.019	6	4.170	5.717	.000(a)

74.398	102	.729			
99.417	108				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.522	.579		2.630	.010
RU	.258	.119	.220	2.169	.032
PR	-.102	.086	-.104	-1.179	.241
CE	-.067	.093	-.068	-.724	.471
IM	.145	.106	.137	1.371	.173
RD	.389	.123	.315	3.167	.002
SN	-.103	.097	-.097	-1.055	.294

Highlighted variables show $p < .01$

Testing for the possible impact of demographic and behavioral variables on intention to adopt, a series of additional regression models were performed. Specifically, the data set was divided based on gender, age, monthly income, and E-commerce users and non users. These results conform to the main regression model, with three notable exceptions (Table 10). Subjective norms is significant for IB-Users whose salary is less than or equal to AED 7,000 per month. Perceived risk and image is significant for non-users of IB who are over 30 years old and image is significant for non-users who are over 30 years old and for those who are non-E-commerce users.

Table 10

Regression Models - Demographic Variables

	Users of Internet Banking	Non-Users
Male	PU (.000) - PR (.027)	

	CE (.031) IM (.040)	
Female	PU (.000)	RD (.007)
Age <= 30 years	PU (.000)	PU (.013) RD (.004)
Age > 30 years	PU (.004) - PR (.006)	- PR (.046) IM (.008)
Salary <= AED 7,000	PU (.000) IM (.000) SN (.019)	PU (.000)
Salary > 7,000	PU (.040) - PR (.001)	RD (.003)
Ecommerce Users	PU (.050) CE (.001)	
E-Commerce Non-User	PU (.000) - PR (.004) IM (.037)	IM (.021) RD (.013)

* All values show significance of t at $p < .05$

DISCUSSION

Analyses of results reveal several major outcomes. Even though the UAE is categorized as a non-OECD high income country its financial sector is not well developed. ATMs are the most used banking channel and cash withdrawal/deposit the most used service for both IB Users and Non-Users. This highlights the fact that the UAE is still a cash based economy which has somehow to go with credit card and online payments.

One of the factors impeding the adoption of internet banking is the limited publicity given to this service by banks and the complex procedures in signing up for the service (Table 5B). Non-users of internet banking feel that their banks do not make an effort to publicize its internet banking service and the internet banking account opening procedures are complex.

With regards to factors influencing the intention to adopt or continued use of internet banking we can see for IB Users, that the higher the perceived risk, the lower the intention to adopt. Perceived risk

in banking transactions is expected to be a factor in the minds of customers, perhaps this explains why banks find that a small percentage of customers use ATMs to deposit funds in their accounts. Furthermore, perceived risk maybe more relevant in an environment like the UAE where the majority of population is expatriate who would regularly make fund transfers to their accounts in their home countries and would be looking to use internet banking for that purpose. The risk of errors in online transfer would be something to consider. As expected, computer self efficacy and image are also positive factors here and for obvious reasons. One's comfort level with computers and the internet is a direct facilitator of the decision to adopt the technology, especially with this serious endeavor of internet banking where mishaps can be costly. As for image, it relates more to the desire to identify with a certain group of people and previous studies support this result.

Our new combined construct of relative usefulness showed its impact on the intention to adopt with current users. We argue that relative usefulness is perhaps the most important factor in technology adoption in general and internet banking in particular. In essence, relative usefulness is representative of the real added value. What prompts someone to use internet banking for their banking transactions?. In the days of ATMs, telebanking and the wide distribution of branches and the enhanced customer service in them, in light of all of this, there has to be an added value in using internet banking. In sum, relative to other channels, the users of internet banking perceive it to be of higher value.

For Non-users, results are less straightforward. Only two factors emerged as relevant, relative usefulness and results demonstratability. This is surprising as it is difficult to see that perceived risk, computer efficacy, image, and subjective norms are not relevant in the minds of those who may adopt internet banking. This is further compounded by the fact that ranking comparison of banking services used often by IB Users and Non-users showed similar patterns. For example, how could perceived risk not be factor in the consideration? Not clear. Perhaps the issue is one of priority. The question on the mind of the potential adopter could be first whether or not there is added value (relative usefulness) and actual results (Result Demonstratability), while other considerations will follow with the application.

For those IB Users whose salary is less than or equal to AED 7,000 subjective norms and image are significant while for those IB Users whose salary is above AED 7,000 it is not significant while perceived risk is. It is generally expected that subjective norms play a role in the decision of the potential user to adopt internet banking. Perhaps at higher salary levels perceived risk is what is more important. For the Non-users sub group of those over 30 years old perceived risk and subjective norms are significant as compared to relative usefulness and result demonstratability for the 30 years or less group. One could conclude that the older group of Non-users is more risk averse and requires reassurance in influencing their intention to adopt. Image is significant for the Non-user who belongs to the E-commerce non-user sub group. It would seem that for one who has not used any form of online financial activity the reassurance from the salient referent in the form of a family member, friend or colleague will influence his/her decision to adopt internet banking.

Future research in this area can focus on further refining the model. Possible ways to achieve that would be through drilling down with the users and non users to get more concrete results on motives and incentives. Are cultural variables a significant factor needs to be explored. The actions on banks are worthy of investigation. The difficulty here is the normal hesitation by banks to share information for obvious reasons that have to do with commercial competition. It would be very useful to gauge the attitudes and behaviors of internet bank managers. Also, one would expect notable distinctions in the behaviors and attitudes towards internet banking between individual, small business, and corporate customers, in addition to gender as suggested by results.

CONCLUSION

The results of this study validate to a large extent the main theoretical model used here, and gives support to the modified construct of usefulness. However, further refinement of the models is required, especially with respect to subjective norms and results demonstratability. Certain adaptations to cultural and regional norms would be of value.

It is concluded that serious and proper development in the design, interface, and promotion of internet banking in the UAE is needed. Banks so far have not taken advantage of the internet in order to increase the level of service and reduce transaction costs on the way to achieve competitive advantage. For example, successful online applications of frequent flyer programs in

the airline industry may be a useful benchmarking exercise for internet banking. Banks should publicize its internet banking services and make the internet banking account procedures less complex. It is believed that given the changing competitive nature of the financial sector as a result of the upcoming GCC developments, banks in the UAE will have to start sooner than later responding to these pressures and one way to achieve that will be through internet banking.

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